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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,375	12/29/2000	Futoshi Tanigawa	10059-365US (P23917-01)	1498

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PHILADELPHIA, PA 19103-7013

EXAMINER

CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,375

Applicant(s)

TANIGAWA ET AL.

Examiner

Gregg Cantelmo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,7,10,13 and 16-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,7,10 and 13 is/are rejected.
- 7) ☒ Claim(s) 16-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. In response to the amendment received April 4, 2003:
 - a. Claims 2-3, 5-6, 8-9, 11-12 and 14-15 have been cancelled. New claims 16-25 have been presented. Claims 1, 4, 7, 10, 13 and 16-25 are pending;
 - b. The objection to the abstract has been withdrawn in light of the abstract submitted in the aforementioned amendment;
 - c. The 112 rejections have been withdrawn in light of the amendment and Applicant's arguments;
 - d. The prior art rejections have been withdrawn in light of the amendment. However the scope of claim 1 has been amended to further define the range of the oxidation number of the nickel, which renders this office action final as more clearly set forth below.

Information Disclosure Statement

2. The information disclosure statement filed January 14, 2003 has been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains, Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-219701-A (JP '701) in view of JP 08-203508-A (JP '508).

JP '701 discloses a positive electrode for an alkaline storage battery containing a first active material and a second active material: the first active material comprises X parts by weight of nickel hydroxide (X being 90-60 weight percent of the first and second active materials) with $aX/100$ parts by weight of cobalt oxyhydroxide ($aX/100$ being 1-10 weight percent of cobalt oxyhydroxide), and the second active material comprising Y parts by weight of particular nickel oxyhydroxide (Y being 10-40 weight percent of the first and second active materials) and $bY/100$ parts by weight of cobalt oxyhydroxide ($bY/100$ being 1-10 weight percent of cobalt hydroxide), the nickel in the second active material has an inherent oxidation number α (claim 1).

One of the nickel hydroxide and nickel oxyhydroxide contains at least one element of cobalt, zinc, cadmium, magnesium, calcium, manganese and aluminum (translated prior art claim 6 as applied to claim 4).

The difference between the instant claims and prior art of JP '701 is that JP '701 does not explicitly disclose the oxidation number of the second active material to be from 2.6 to 2.92.

JP '508 discloses that nickel valence levels from 2.2-3.4 are known and cites a specific value of 2.8 (paragraph [0015], see attached JPO website translation).

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Selection of a nickel valence level between 2.2-3.4, encompasses the instant claimed range. Further the specific value of 2.8 is within the instant claimed range.

The motivation for selecting the nickel valence of JP '701 to be from 2.6 to 2.92 is that it optimizes the charge and discharge cycle of the electrochemical cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '701 by selecting the nickel valence of JP '701 to be from 2.6 to 2.92 since it would have optimized the charge and discharge cycle of the electrochemical cell.

Response to Arguments

5. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '701 in view of JP '508 as applied to claims 1 and 4 above, in further view of U.S. patent No. 6,083,642 (Kato).

The teachings of claims 1 and 4 have been discussed above and are incorporated herein.

The difference not yet discussed is of the oxidation number of the cobalt in the oxyhydroxide in the active materials in greater than 3.

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Kato discloses a process wherein the nickel active material is coated with cobalt having an oxidation number greater than 3 (abstract).

The motivation for using a higher valence cobalt material is that it provides a positive electrode material having high active material utilization and improved overdischarge withstanding characteristics (col. 4, ll. 18-22).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '701 by providing a higher valence cobalt material since it would have provided a positive electrode material having high active material utilization and improved overdischarge withstanding characteristics.

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

8. Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '701 in view of JP '508 as applied to claims 1 and 4 above, in further view of U.S. patent No. 4,837,119 (Ikoma).

The teachings of claims 1 and 4 have been discussed above and are incorporated herein.

The ratio of negative electrode capacity to positive electrode capacity is 2 to 1 (paragraph [0032] as applied to claim 13).

The differences not yet discussed are of the battery further comprising a negative electrode comprising a hydrogen storage alloy, a separator, an aqueous alkaline electrolyte solution, a sealing plate having a safety valve and a battery case.

While JP '702 does not detail the overall components of the battery, one of ordinary skill in the art would have found such modifications to have been readily apparent.

Ikoma discloses a sealed storage battery comprising a positive electrode 11, negative electrode 10, separator 12b, aqueous electrolyte solution, and a sealing plate having a safety valve (Fig. 5 and col. 6, line 48 through col. 7, line 8).

For JP '701 to measure the performance of the cells having the positive electrodes therein, the presence of an opposing negative electrode is required as well as an electrolytic solution to enable charge transfer in the battery.

Ikoma teaches of the use of a positive electrode, negative electrode and aqueous alkaline electrolyte solution in the aforementioned columns and lines.

Thus the motivation for providing a negative electrode and electrolyte solution is to effectively enable charge transfer from the positive electrode to a second electrode across the electrolytic medium.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '701 by providing a negative electrode and electrolyte solution since it would have effectively enabled

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change transfer from the positive electrode to a second electrode across the electrolytic medium.

In manufacturing a cell, the use of the separator is and obvious addition as shown by Ikoma to effectively separate the positive and negative electrodes in the aforementioned Fig. 5 and columns 6 and 7.

The motivation for using a separator as shown by Ikoma is to electrically isolate the positive and negative electrode materials.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '701 by using a separator as shown by Ikoma since it would have electrically isolated the positive and negative electrode materials.

The use of a sealing plate seals the battery components from the external atmosphere in the aforementioned Fig. 5 and columns 6 and 7.

The motivation for providing a sealing plate to the open end of a battery is to seal the battery components within the battery and isolate them from the external environment.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '701 by providing a sealing plate to the open end of a battery since it would have sealed the battery components within the battery and isolated them from the external environment.

While providing a safety valve in the sealing plate which releases the gas generated in the battery out of the battery when inner pressure rises above a given

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value, in order that the battery is not damaged and does not explode in case of the abnormal increment of the inner pressure in the aforementioned Fig. 5 and columns 6 and 7 and also in col. 3, ll. 8-25.

The motivation for providing a safety valve in the sealing plate is to compensate for internal pressure fluxes so that the battery is not damaged and does not explode in case of the abnormal increment of the inner pressure.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '701 by providing a safety valve in the sealing plate since it would have compensated for internal pressure fluxes so that the battery would not be damaged and would not explode in case of the abnormal increment of the inner pressure.

Response to Arguments

9. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

10. Claims 16-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record appears to teach, suggest or render obvious the invention of claims 16 and 21.

JP '701 teaches of a positive electrode having first and second active materials in the relationship defined by claim 1. However there is no teaching or suggestion to further add cobalt hydroxide (claim 16) or cobalt oxyhydroxide (claim 21) in combination with the relationships set forth in respective claims 16 and 21. The relationships therein teach of adding the cobalt hydroxide or cobalt oxyhydroxide in conjunction with the additive first and second active materials.

None of the prior art of record appears to teach or suggest the combination of cobalt hydroxide or cobalt oxyhydroxide mixed with first and second active materials bound by the constraints of the relationships in respective claims 16 and 21.

Claims 17-20 and 22-25 are dependent upon claims 16 and 21, respectively, and are further held to be allowable.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gregg Cantelmo
Patent Examiner
Art Unit 1745



Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700

gc

June 12, 2003